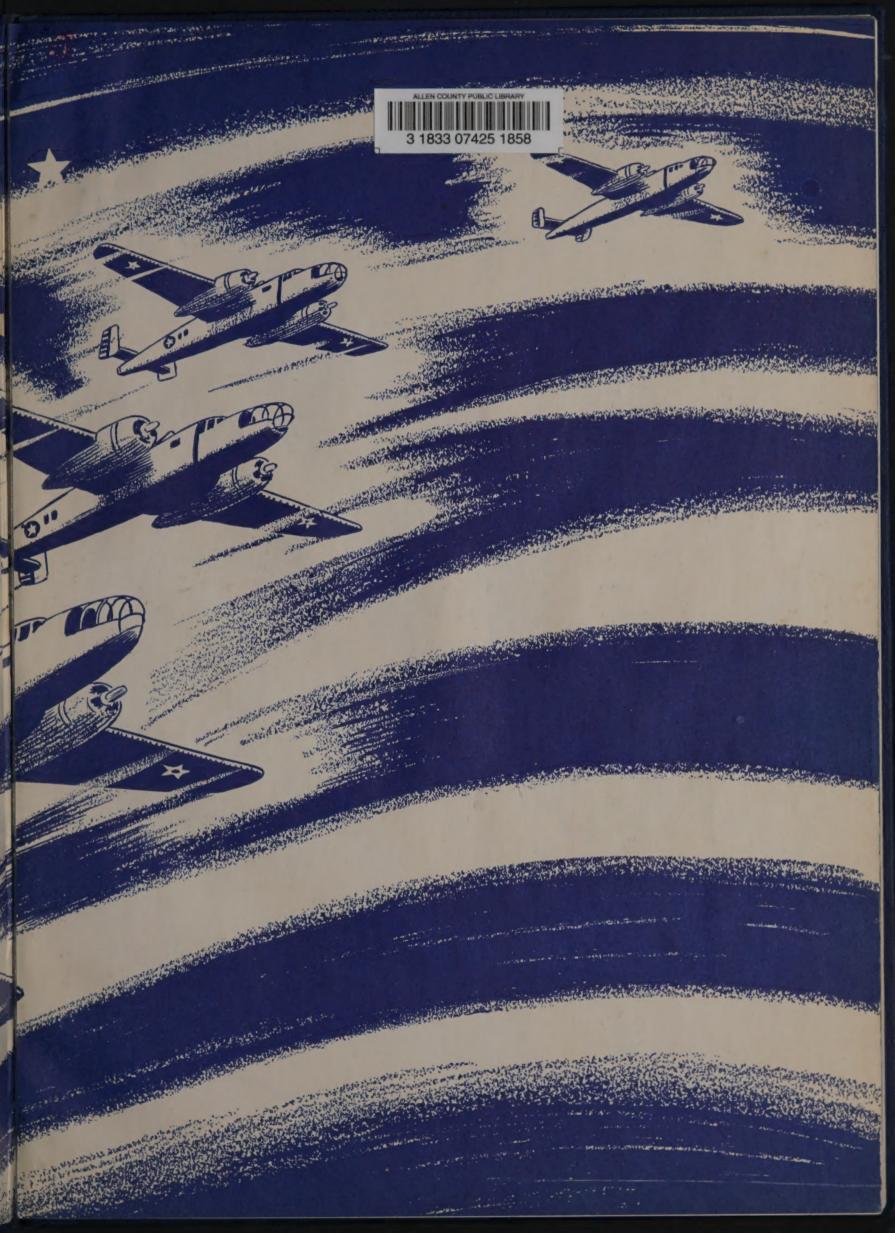


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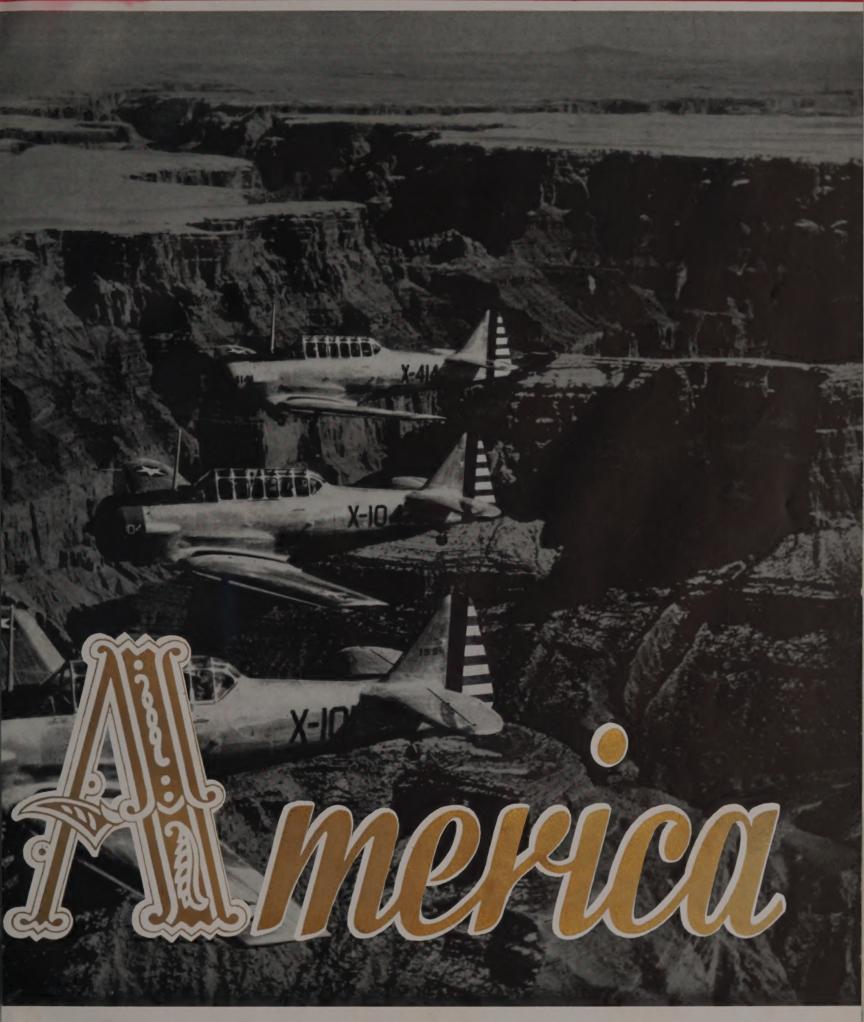
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# ARMY AIR FORCES







assistance for this volume and their co-operation in numerous other ways, grateful Division, War Department Bureau of Public Relations, Washington, D. C.; Public Center, Maxwell Field, Alabama; Army Air Forces Gulf Coast Training Center, Randolph Santa Ana, California; Public Relations Office, Fifth District, Army Air Forces Technical

As members of the United States Armed Forces you do not have to be told of the magnitude and importance of the task that lies before you.

At every base, station and training field of the United States Army Air Forces you are preparing yourselves for the great test of arms which will prove that the forces of democracy can destroy the evil power of the totalitarian nations.

Soon you will take your places as Bombardiers, Navigators, Pilots, and Gunners alongside of our allies who have been fighting so valiantly. As mechanics and supply personnel, and in every type of ground duty, you will have the vital responsibility of making sure that our airplanes will be second to none.

We can win this war, and we will win it, but only if every officer and enlisted man puts forth all the fortitude and resourcefulness that Americans have always displayed in time of war.

There are trying times ahead, times that will test the mettle of all of us, but I am confident that the personnel of my command will acquit themselves with honor and distinction, no matter where and when we shall meet the enemy.

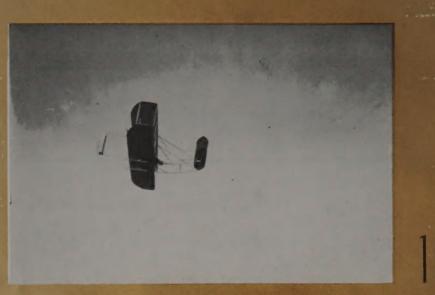
Lieutenant General, U. S. Army,

Commanding General, Army Air Forces.





General H.H. arnold





First flight September 5, 1908.

With the reorganization of the aviation setup of the United States Army, on March 9, 1942, has come the latest phase of the development of the nation's military aviation from its groping, experimental days to its present status as an autonomous unit within the structure of the Army.

The story of the rapid growth of our nation's military aviation, from an unimportant subdivision of the Signal Corps before the first World War, through the period when it was a corps of its own, the Air Corps, and now to a degree of tremendous importance as the Army Air Forces, co-equal in prominence with all the other Army combat arms combined, is a stirring saga of courage and inspiration, of indomitable will and far-sighted genius, all within the short space of

The utilization of aviation by the Army, however, antedates 1909, the official birth year. Civilian aeronauts made observations from captive balloons for the Army of the Potomac during the American Civil War, and later the Army purchased a balloon in France which was used in Cuba during the Spanish-American War.

It was not, however, until the experiments of Langley, Maxim, Lillienthal, Bleriot, the Wrights and others had focused attention on the possibilities of heavier-than-air machines that the Army considered seriously this newest military adjunct. It was not until the Wrights had demonstrated that a heavier-than-air machine was not only feasible, but practical that the Army advertised for bids for the construction of an airplane. An aeronautical division of the Army was created in the Office of the Chief Signal Officer of the Army on July 1, 1907.

The Wright brothers produced an airplane which was delivered to Fort Myer, Virginia, on August 28, 1908. It was a biplane with a wing spread of about 40 feet and a wing area of some 500 square feet weighing approximately 800 pounds. The lateral controls were affected by warping the wings. The double elevator and the rudder were supported in front of the wings by an outrigger. The landing gear consisted of two runners, or skids, and the plane was launched from a monorail. After a series of disappointing accidents and many tests, the Board of Officers appointed to examine the plane made a favorable recommendation on August 2, 1909, and the Chief Signal Officer approved the recommendation the same day. This date is considered the birthday of the Army Air Forces.

While thus inaugurating the air arm of the service on this date, the value of aircraft in a military way was not immediately apparent, particularly to a nation at peace, and it was not until March, 1911, almost two years later, that Congress for the first time specifically appropriated money for aviation . . . to the tune of \$125,000. By September, 1913, Army aviation had grown slowly until it had 17 planes, with a personnel of 23 officers and 91 enlisted men.

Inasmuch as the original conception of the role of aircraft in warfare was purely that of observation, the control of military aviation was left in the hands of the Signal Corps, and, indeed, aviation remained in this branch until 1918, when it was divorced from the Signal Corps and expanded into two departments—the Bureau of Military Aeronautics and the Bureau of Aircraft Production. Upon the termination of the war these two departments were consolidated into the Air Service.

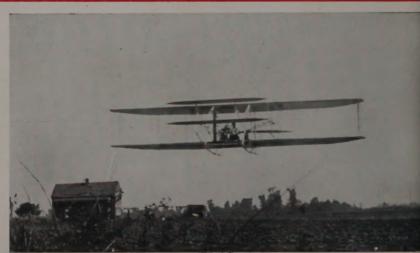
The first actual use of aircraft by the Army began in March, 1916, when the First Aero Squadron, composed of 16 officers, 77 enlisted men and eight airplanes began operations with the Punitive Expedition in Mexico.

The World War, of course, with its constantly accelerating emphasis

Orville Wright in flight, Maxwell Field, 1910.

Wilbur Wright at Fort Myer, July 27, 1909.





# THE ARMY AIR FORES

upon air power, was responsible for the rapid expansion of American aviation. By the time of our declaration of war upon Germany in April of 1917, Army aviation consisted of 65 officers (35 of whom were flyers), 1,087 enlisted men and 55 airplanes. No better commentary can be made upon the changing role of air power at the beginning of the World War and of the present conflict than to compare this number with the 10,697 officers, 126,660 enlisted men and 8,707 aviation cadets which we had on June 30, 1941, with the number constantly increasing under the impetus of the greatest expansion program in history.

During the first eight years of its existence, 1909-1916—a total of 142 airplanes had been delivered to Army Aviation. Congress, in July of 1917, appropriated \$640,000,000 for Army Aviation, the largest appropriation which had ever been made up until that time for any single purpose. Working as rapidly as possible, the country began the gigantic task of catching up in production with countries long at war. The first task was to train American flyers and for this purpose flying schools and ground schools were set up at a number of schools and colleges. Nearly 15,000 flying cadets received training in this country, and about 1,800 in Europe. By March, 1918, our Army Aviation strength was 11,000 officers and 120,000 enlisted men.

At the time of the Armistice we had 757 pilots, 481 observers, with 740 planes and 77 balloons at the front, and 1,402 pilots, 769 airplanes and 252 balloon observers had entered the Zone of Advance.

While at the time of the Armistice less than 25 per cent of the planes flown by American pilots were of American manufacture, we were already beginning to swing into large scale production, principally of British designed DeHavillands and Handley-Page's equipped with the American Liberty motor, the greatest contribution of American manufacturers to the war effort.

American aviators were officially credited with the destruction of 491 enemy airplanes, of which 462 were accounted for by 63 aviators. We had 43 squadrons at the front at the time of the Armistice.

Following the conclusion of the war, our air strength was allowed to dwindle to 1,000 officers and 10,000 men.

The Army Reorganization Act of 1920 provided for 1,516 officers and 10,300 enlisted men for the Air Service, and the Air Corps Act of 1926 authorized a "Five Year Program" which contemplated at its

conclusion a personnel strength of 1,650 officers and 15,000 enlisted men with 500 cadets, and aquipment consisting of 1,800 serviceable planes.

On March 1, 1935, the famous GHQ Air Force was established, embracing all tactical Air Corps Units within the Continental United States. Prior to its formation combat squadrons were trained under widely different methods, depending upon the conception of the Group Commanders. The purpose, which was accomplished, of the GHQ Air Force, was to co-ordinate the systems of training so as to produce uniformity and the ability to operate together as a team. Another accomplishment was the later development of the combat crew as a fighting team. In practice, the same officers and men were assigned to the same airplane, and each team, through constant co-operation and practice, was able to attain a high degree of efficiency.

Even more important than all these innovations, however, was the fact that the Air Corps, as it was known then, was, for the first time, under a unified command, and under an air officer, Major General Frank M. Andrews (now a Lieutenant General in command of the Caribbean Defense Command). Here was another notable step toward the fullest development of our Army Air arm as an independently-functioning entity, complete within itself.

This organization of air power into a highly mobile striking force of great unified power had, as its backbone, the function of Bombardment. The GHQ Air Force was divided into three Wings.

The First Wing, with headquarters at March Field, California, comprised two Bombardment Groups, one Attack Group, and two Reconnaissance Squadrons.

The Second Wing, with headquarters at Langley Field, Virginia, comprised two Bombardment and two Pursuit Groups, and two Reconnaissance Squadrons.

The Third Wing, at Barksdale Field, Louisiana, was composed of one Attack and one Pursuit Group.

But even this organization was to be changed soon by the pressure of ever-increasing expanison of our Army Aviation. On June 23, 1941, the Army Air Forces was established. These included the Headquarters, Army Air Forces; the Air Force Combat Command (which superceded the GHQ Air Force), the Air Corps and all other air

They Flew Them When—Major H. H. Arnold, Major Thomas Dewitt Milling, pioneer military aviators, and Army planes of 30 years ago—taken in 1912 when Army air strength consisted of two planes.

Burgess Tractor-1914.







### WORLD WAR NO. 1 AND OUR

units. At the same time an Air Council was created to review and co-ordinate major Army aviation projects. The Air Council included Assistant Secretary of War for Air, Robert A. Lovett (ex-officio), Lieutenant General H. H. Arnold, president of the council, Lieutenant General Delos C. Emmons, Major General George A. Brett, and the Chief of the War Plans Division of the War Department General Staff. In addition to his duties as Deputy Chief of Staff (Air), General Arnold became Chief of the Army Air Forces. General Emmons was made Chief of the Air Force Combat Command, and General Brett,

At the end of May, 1941, the Ferrying Command was organized to speed up the process of getting bombers to our English allies. Originally under the command of Colonel Robert Olds (now a Brigadier General in command of the Second Air Force at Spokane, Washington), it is now commanded by Brigadier General Harold L. George, and designated Air Transport Command. Since Pearl Harbor its activities have been vastly expanded into a huge world-wide organization engaged in the transport of all types of aircraft, plus supplies, equipment, and personnel to all the fighting fronts.

Chief of the Air Corps.

By the final reorganization, or "streamlining," which took place last March, the Air Corps ceased to exist, even as a purely administrative organization, and the Combat Command was eliminated, as well. The various combat Air Forces, which are complete units of themselves, are now directly under the command of overall field commanders such as General MacArthur, another step forward in unified command. It is interesting to note that many of these field commanders, whose commands comprise all arms of the service, are themselves air officers, such as General Andrews, in the Caribbean. Each Air Force is, of course, commanded by an Air Force Officer, of general grade, whether within the continental United States or overseas.

These combat forces include all units of military aviation such as bombardment, interception (fighter squadrons), Observation, and ground-air support, together with the necessary maintenance service.

As a result of the March 9 change, the Air Forces are recognized as one of the three elements of the Army, together with Ground Forces

and Supply. This new organization, designed to simplify and speed up the chain of command, and to provide the flexibility and efficiency of operation necessary to accomplish the enormous task that lies ahead, designates Lieutenant General H. H. Arnold as Commanding General, Army Air Forces, and also as Deputy Chief of Staff for Air on the Army General Staff. By the same reorganization, Lieutenant General Joseph T. McNarney, one of the ablest American air strategists, was made Deputy Chief of Staff.

In addition to these two officers, however, the Air Forces have a far greater representation than ever on the General Staff. As a matter of fact, the General Staff, as now constituted, is about one-half composed of officers from the Air Staff.

The Air Staff, which is rather like a Staff within a Staff, and which is a purely Air Forces organization, is similar in general outline to the General Staff, but on a slightly smaller scale, with designations such as A-I, A-2, etc.

The complexity and extension of Army aviation from its simple Signal Corps days until the present is no better illustrated than by a brief review of the various branches of the Air Forces. The overall picture of the Army Air Forces organization may be summed up under four key words: Policy, Forces, Operations, and Commands.

The Policy function has already been discussed at the start of this article. It is handled by the Commanding General of the Army Air Forces and the Air Staff, plus the Air Forces' participation in the Army General Staff. In addition to the Assistant Chiefs of the Air Staff (A-1, A-2, A-3 and A-4), there is an Air Inspector.

The various Air Forces, which are the combat organizations of the Army Air Forces, have been covered in paragraphs above.

The next group in the logical breakdown of the Army Air Forces organization is the Operations Staff; this is divided into Military Requirements, Technical Services, and seven administrative agencies: the Public Relations Officer, Director of Personnel, the Air Surgeon, Air Judge Advocate, Budget Officer, Director of Management Control, and Military Director of Civil Aviation.

Now for the fourth element of the organization of the Army Air Forces: operating directly under the Commanding General of the

Army Air Forces, seven great commands compose the last stages of Air Forces' preparation for combat units. It may be of interest to outline the functions of these various Commands.

I. The MATERIAL COMMAND. Experimental aviation activities, which were carried on at Washington by a few technicians prior to the World War, were concentrated at Dayton, Ohio, on November 5, 1917, under the command of Colonel V. E. Clark, Signal Corps. The laboratories, located at McCook Field, were supplemented by offices in Dayton. In 1926 the Air Service became the Air Corps and the functions of supply, procurement and maintenance of aircraft were added to this division, and the name changed to "Materiel Division."

The location of the division was changed from McCook Field to Wright Field in 1926.

The Materiel Division has figured directly or indirectly in nearly all important aircraft developments, commercial as well as military. It is the great experimental and testing branch of the Air Force and includes, among its many accomplishments, superchargers, the "Whirlwind" engine, use of ethylene glycol for high temperature cooling, high octane gasoline, vibration control, metal propellers, night and instrument flying, haze penetrating film for aerial photography, night and color photography, and many other developments.

2. The FLYING TRAINING COMMAND. While the Headquarters of the Air Corps Training Center began to function at Duncan Field, San Antonio, Texas, in 1936, flying training in the Army has been continuous almost since the purchase of the first Wright airplane in 1909

The first Army flying school was established at College Park, Maryland, in October, 1909. Lieutenant Frank P. Lahm and Frederick E. Humphreys were the first students of the Wright brothers. Lieutenant Lahm later became a Brigadier General and commanded the Training Center from its inception in September, 1926, until August 31, 1930. This veteran flyer is now Air Officer of the Second Corps Area at Governors Island, New York, Among the first five Army aviators were Lieutenant H. H. Arnold, now Lieutenant General. Among them also was Lieutenant Benjamin D. Foulois, now Major General, retired. General Foulois became a Brigadier General at the age of 38 as Chief of the Air Service of the First Army, American Expeditionary Force. He became a Major General and Chief of the Air Corps on December 20, 1931.

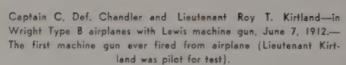
The function of the flying Training Command is, of course, to coordinate and direct the immense job of providing officers and men for the vastly expanding Air Forces. In order to accomplish this with the greatest efficiency and to eliminate the possibility of administrative bottlenecks, General Arnold set up the Flying Training Command, as it now exists, under the command of Major General Barton K. Yount, with headquarters at Fort Worth, Texas. This command is divided in three great regional training areas, one in the Southeast, one in the Gulf Coast region, and one in the Southwest. All of these regional training areas are complete within themselves, providing their own Reception Centers, Replacement Centers, Primary, Basic, and Advanced Schools (for pilot trainees), and Navigator Schools. Bombardier trainees, however, are all sent to schools located in the Southwestern part of the country, where weather conditions are best

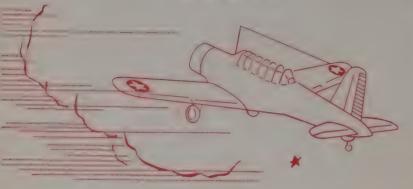
### AIR FORCE STRENGTH GROWS

Top Picture; 213th Aero Squadron, Second Army—Enlisted Men. Bottom Picture: Officers and Planes—N 13 Pursum Squadron, Third Pursuit Group.









for this particular type of training. The Flying Training Command also provides for instruction in fixed and flexible gunnery.

3. The TECHNICAL TRAINING COMMAND. The first effort to train Army aviation mechanics systematically was during the early days of the World War, utilizing state universities and civil technical schools. The system was a failure, due to the large costs involved, as well as other reasons. Therefore, the Aviation Section, Signal Corps, established schools at St. Paul, Minnesota, and at Kelly Field, Texas. The Kelly Field school was discontinued after the Armistice.

In 1921 the school was moved to Chanute Field, Illinois, and in 1922 the Photographic School, at Langley Field, and the Communications School, at Fort Sill, were consolidated with it.

The school outgrew its area, and in 1935 another site was sought for a second school, and a second school was established at Lowry Field, near Denver, Colorado.

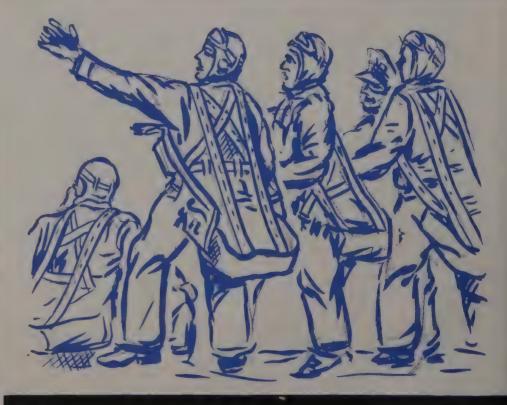
The present expansion program of Army Aviation has necessitated the further expansion of the mechanic training program in order to provide the ever-increasing Air Forces with an adequate supply of trained mechanics, particularly in view of the fact that engines and equipment are constantly becoming more complex as well as progressively more modern.

The Technical Training Command provides technical training for Army Air Forces personnel not trained by the Flying Training Command. Under this category came not only ground crew personnel.



Lieutenant Henry H. Arnold in Wright B airplane, College Park, Maryland, 1911.







such as mechanics, but also such aircrew members as the aerial engineer and communications officer.

- 4. The AIR TRANSPORT COMMAND, as discussed previously, is concerned with air transport, for military use all over the world.
- 5. The AIR SERVICE COMMAND operates air depots, repairs aircraft, and distributes aircraft, equipment, and supplies to air units in the United States.
- 6. The TROOP TRANSPORT COMMAND transports air-borne troops and equipment, parachute troops and equipment, and tows troop- and cargo-carrying gliders.
- 7. The PROVING GROUND COMMAND operates proving grounds to test aircraft and equipment.

### AIR COMBAT

It is quite probable that it is entirely too soon to attempt to define the role of the airplane in relation to the other combat forces of a nation. In spite of that fact there has been raging, and indeed still goes on, a debate between those who feel that air power has to a large extent superceded sea power and even land power as the deciding element in modern warfare, and those who feel that this extreme theory has yet to be supported by actual facts. There are extremists who argue, like the Russian designer Seversky and the Nian General Douhet, that the day of the surface fleet is over, and that the future wars will be decided by the relative merits of the air forces of the combatants. On the other hand, we have the sure evidence of the failure of bombing alone either to permanently disrupt the war effort of a country or to terrorize its civilians into demands that its government surrender. In neither the Spanish Civil War nor In this war, up until the present, has it been possible for the advocates of air power alone to prove their contentions.

At the same time it must be granted that no nation has as yet been able themount the type of air attack envisioned by those who hold that it will be air power that will decide the war. It seems likely, however, that this theory will be given a thorough test before the war is done.

Certainly it is true that the conception of the airplane has already undergone a remarkable series of changes since the beginning of the World War, when it was regarded not in the light of a combat weapon at all. Indeed the first airplanes used in the World War were almost always of one type, a two-seater designed for reconnaissance work. As the war progressed specialization appeared and a class of air-

planes designed first for air fighting, then for bombing, appeared. Several nations, prior to the war, had experimented with the arming of aircraft with machine guns, but on the outbreak of the war no plane on the front was so armed. Rifles, carbines, pistols, and hand grenades were carried by the pilot and observer. The tactics of air fighting were rudimentary. The pilots simply flew close to the enemy and when within range the pilot and the observer blazed away with any weapon they happened to have handy.

In the summer of 1915, belligerents began to mount machine guns in the planes, usually on a swivel bar at the back of the observer's seat. The observer could only fire the gun backwards toward the tail of the plane, firing over the pilot's head, which made for a very restricted zone of fire. This necessitated that in order to fire on an opponent, the plane had to fly away from the enemy, thus making it very difficult to be effective. The British experimented with a type of plane in which the gun was mounted in the front and the motors faced the rear. This type gave the advantage of frontal firing, but was so slow on climbing and flight that it was abandoned within a short time.

The first real fighting aircraft to make its appearance was the German Fokker monoplane. Fast, maneuverable, and of the tractor type, the plane had a machine gun mounted in such a fashion as to synchronize with the revolutions of the propeller, thus allowing it to be fired straight ahead. The pilot aimed the gun by aiming the airplane. This plane was so obviously superior to those of the Allies that command of the air passed to the Germans throughout the rest of the year. In 1916, however, the British were able to challenge the Germans by producing their own type of front-firing plane, although it was not until near the end of 1916 that the Allies were able to produce machine gun mounted planes of the Fokker type.

The success of the Fokker airplane was responsible for the advent of formation flying. Casualties among the French and British had grown so heavily that individual flights were discontinued and flights of three or more planes took their place. The Germans retaliated, and by the end of the war patrols were the accepted form of air tactics.

It early became apparent to air-minded officers that great damage could be inflicted upon the enemy by dropping bombs from aircraft on his troops, ammunition dumps, factories and other military installations. Indeed, many of the early fighters attempted some rudimentary bombing flights, using hand grenades. These were usually



Wright airplane—First plane in Philippine Islands at Fort McKinley.
1912—Lieutenant Frank P. Lahm, pilot.



First plane used by American aviators in France during World War (1918), Morane Roulier airplane.







ineffective except in rare instances. Bombs were then devised which could be dropped from the plane. In early bombing raids the bombs were carried in the cockpit of ordinary fighter planes and heaved over the side by the observer whenever he judged himself to be in a position to hit his target. This was a clumsy, inaccurate system, however, that soon lead to the design of an entirely different craft made for bombing alone, and equipped with machine guns for protection. These planes, which were growing larger and larger as the war progressed, were equipped with bomb racks controlled by mechanisms within the bomber, and carried crews of from three to six men. They were utilized at first as lone raiders, depending on stealth and surprise to accomplish their tasks, but by 1917 there had evolved the system of formation attacks by squadrons of bombers escorted by fighter planes as a protective screen. The Germans used this system first to great advantage, and by concentrating very large flights were able not only to concentrate the power of the bombing assault, but have enough fighters to sweep the skies of the opposition.

In addition to the duties of Reconnaissance, the original role of the airplane, had been added the duty of patrol, straffing and bombing, with the Bombardment arm always tending to become more and more important.

After the war the Air Services of all countries began to experiment more and more with the development of bombing planes of increased power and destructive ability. It was realized that it was increasingly possible for planes to inflict very heavy damage on the enemy from the air.

The development of bombsights by all the major powers was to a large degree responsible for this. The American bombsight was recognized as being probably the most accurate of any developed in this period. Accuracy in hitting a predetermined target was coupled with increased altitude which made the planes more safe from enemy fighters and antiaircraft attack. Increased speed and range of the planes has developed down until the present time, when every belligerent possesses bombers capable of flying immense distances with heavy bomb loads.

The United States was among the first to develop the art of dive bombing, wherein the plane is pointed downward at the target and releases its bomb very low, depending upon the tremendous speed of the dive for protection. The dive bomber is very accurate inasmuch as the pilot has the target before him on the way down and does not release his bombs until just above it. It remained for the Germans to develop this to the highest, and it was employed with great success in the battle of France. Many military experts say that the Stuka dive bomber is the greatest single contribution of the war to air combat. The Germans also experimented with and developed the use of air-

borne soldiers, utilizing the parachute, originally a safety device, as an instrument for the dropping of offensive men behind the enemy lines. The Russians also have used this extensively, and paratroops are now a part of every belligerent Army. Troop transports capable of carrying many men, supplies and equipment have also been developed, and in the battle of Crete the Germans used air-borne troops to carry the brunt of the battle.

The Japanese and the British have both added chapters to the development of air combat by the use of the torpedo-carrying planes as an effective weapon with which to attack enemy warcraft which are not heavily protected by fighter planes. The English at Taranto and the Japanese at Pearl Harbor and off Malaya demonstrated that unprotected warships can be sunk with relative ease by planes of this type unless they are in turn protected by fighter planes based either on land or on accompanying aircraft carriers.

The day of the spectacular individual air "ace" has apparently closed, as pilots are taught more and more to fly and to fight in absolute formation. Formations are increasing in size as the strength of the warring nations in the air continues to grow.

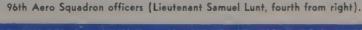
There has been a growing belief on the part of military men that the day of air power in combat is only begun, and that this war will produce innovations and changes equally as great as those produced in the World War. It is certain that each day, all over America, more and more fighters, bombardiers, navigators, observers, gunners, mechanics and technicians are being trained for whatever role shall be assigned them in America's growing air armada.

### CHIEFS OF THE AIR CORPS (Now Army Air Forces)

During the World War, Army Aviation was divided into the Bureau of Military Aeronautics, directed by Major General William L. Kenly, and the Bureau of Aircraft Production, directed by Mr. John D. Ryan, the copper magnate. With the advent of peace, these bureaus were consolidated under one title—Air Service—under the command of Major General Charles T. Menoher, who had commanded the 42nd (Rainbow) Division overseas.

On October 4, 1921, General Menoher was succeeded by Major General Mason M. Patrick. He remained in command until his retirement on December 13, 1927, and was succeeded by Major General James E. Fechet, who served until his retirement in 1931.

Major General Benjamin D. Foulois served for four years, until December, 1935, when he was succeeded by Major General Oscar Westover, who served until his death in a flying accident in 1938. At that time Major General (now Lieutenant General) H. H. Arnold took over, and to him has fallen the immense task of directing the Air Forces through the present period of war.







FRANK M. ANDREWS Lieutenant General



GEORGE H. BRETT Lieutenant General



DELOS C. EMMONS Lieutenant General



GEORGE C. KENNEY Lieutenant General



JOSEPH T. McNARNEY Lieutenant General



RALPH P. COUSINS Major General



JOHN F. CURRY Major General





JAMES A. DOOLITTLE Major General



MUIR S. FAIRCHILD Major General



JACOB E. FICKEL Major General



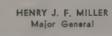
WALTER H. FRANK Major General



HAROLD L. GEORGE Major General

RUSH B. LINCOLN Major General

FREDERICK L. MARTIN Major General



















FOLLETT BRADLEY Major General



GERALD C. BRANT Major General



LEWIS H. BRERETON Major General



WILLIAM O. BUTLER Major General



JAMES E. CHANEY Major General





IRA C. EAKER Major General



BARNEY McK. GILES Major General



WILLIS H. HALE Major General



HUBERT R. HARMON Major General



MILLARD F. HARMON Major General

WALTER R. WEAVER Major General



DAVENPORT JOHNSON Major General

RALPH ROYCE Major General



CARL SPAATZ Major General



GEORGE E. STRATEMEYER
Major General



BARTON K. YOUNT Major General





From the end of the World Wer to the present time, the Air Forces have pioneered in numerous aviation activities. Air Forces have pioneered in numerous aviation activities. After the flights and activities, chronologically arranged, are few of these flights and activities, chronologically arranged.

1920—February 27. Major Rudolph W. Schroeder established a world's altitude record of 33,000 feet. annyude record of 33,000 reet.

1921—February 12. The Army Air Ohio, flight.

Washington, D. C., to Dayton, Carrier Successfully completed a total

Washington, D. C., to Dayron, Omo, Hight.

1921—September I. The Army Air Service successfully completed a total of 396 forestry patrol flights in the Northwest. 1922—October 6. Lieutenants Oakley G. Kelly and John A. Macready G. Kelly and John B. 1.4 minutes.

1922—October 6. Lieutenants Oakley G. Kelly and John B. 1.4 minutes.

1922—October 18 December 18 December 19 December 19

1922—October 18. Brigadier General William Mitchell established a world's record for speed over a measured 3-kilometer course of 324.38 m.n.h. November 4. Lieutenants Kelly and Macready established a flight of 2,060 miles, from San world's record for distance with a Harrison, Indiana.

November 4. Lieutenants Kelly and Macready established a flight of 2,060 miles, from San flight of 2,060 miles

Six Army land planes completed a flight to Porto Rico 1922-November 4.

1923-April 3.

and return.

1923—April 19. Marooned inhabitants of South Fox Island, off the coast relief through the dropping from of Michigan, of food and clothing.

Army Planes of food and clothing.

Army Planes Army Douglas World Cruises departed on an another planes of food and clothing. Army planes of food and clothing.

1924 March 17. Four Army Douglas World Of the planes successfully aerial journey around the world. Two of the planes successfully completed the flight of 27,550 miles in 175 days.

1925—November 20. Lieutenant George W. Goddard, Air Corps, made the first successful night aerial photograph.

1926—April 19. The first maneuvers involving the entire Air Service in which a total of 45 officers and were held at Fairfield. Ohio, in which a airplanes.

1927—May 2. The Market Mark America, unitzing 44 airpianes.

South America, unitzing 44 airpianes.

South America, fight returned from South America,

Corps, in a free itude ever attained Captain Hawthorne C. Gray. Air Corpression of the highest altitude reached 42,470 feet, the highest altitude

1927-May 4. balloon,

by man up to that time.

1927—June 29. Lieutenants Lester J. Maitland and Albert F. Hegen-having, after Oakland, Hawaii, after Oakland, Honolulu, Ocean from Oakland, berger, Air Corps, over the Pacific Ocean from Spanned, 2,400 miles over the Pacific Ocean from California.

1928—June 30. Captain William F. Kenner and Lieutenant William F. Kenner and William F. Kenner and

California.

(Page June 30. Captain William E. Kepner and Lieutenant International Int

August 31. Captain Albert W. Stevens, Air Corps, photographed 227 at a distance of 227 at a d record in long-distance derial photography.

Air Corps, in a accomplished accomplished for accomplished for

which he received the International League of Aviators fromy.

1930—June 20-21. Randolph. San Antonio, Texas, Headquarters of the Air Corps Training Center, was dedicated. 

1932—May 9. Captain Albert F. Hegenberger accomplished the first solo flight entirely by instruments.

solo flight entirely by instruments.

1933—Master Sergeant Ralph W. Bottriell, Cross for having made the presented the Distinguished Flying with the free type parachule, first jump from an Army a result of the present type parachule in May, the Air Corps developed the present type Air Grant Mar approved the GHO. Air first jump and the GHO. Air ing that the Air Corps developed the present type the GHO. ing that the Air Corps developed the present type parachute.

1934—December 27. The Secretary of War approved the Andrews.
Force organization, first Commander, was appointed a Major designated as its first Commander, was appointed.

1935-March 1. The GHQ Air Force was officially organized.

1935—March I. The GHQ Air Force was officially organized.

1935—March I. The GHQ Air Force was officially organized.

1935—August 29. Air Corps engineers made the first flight using the plant of the substance o automatic radio navigation.

1935—November II. Captains Albert W. Stevens and Orvil A. Anderballon.

1935—November II. Captains Albert W. Stevens and Orvil A. Anderballon.

1935—November II. Captains 72,395 feet in the stratosphere balloon.

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1936—November II. Captains Albert W. Stevens and Orvil A. Anderballon.

1937—November II. Captains Albert W. Stevens and Orvil A. Anderballon.

1938—November II. Captains Albert W. Stevens and Orvil A. Anderballon.

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1938

son. Air corps, reached 12,39s feet in the stratosphere balloon.

1935—December 27. Army bombers scored direct hits on menacing.

1936—How from the Mauna Loa volcano in Hawaii which was menacing the city of Hilo. The bombing tended to divert the lava flow to other channels. annels.

The Second Bombardment Group of Langley Field,
The Second Bombardment Group of Langley Field,
The Second Bombardment Group of Langley
The Langley
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The Langley
The Second Bombardment
The Second Bombardmen

missions, utilizing 30 airplanes.

1936—February 10. Major Barney M. Giles, Air Corps; Second Lieutenant D. E. Hamilton and J. H. Patrick, Air Reserve; Air Corps, took off from Concord, J. H. Patrick, Air Connor, J. H. Patrick, B. Connor, J. Green Constant Major Giles circled New Hampshire, about midnight and located Major Giles circled New Hampshire, their position to Coast Major are their New Hampshire, their position to blankets. Each of the narooned on drifting ice their position to blankets. Each of the over the party to show thought food and blankets. Each of the over the party to shich dropped from Cross.

and other planes, which dropped flying Cross. and other received the Distinguished Flying Research Major General Frank M. Andrews made a non-stop four airmen received from Frank M. Andrews made 29. Major General Frank M. Andrews made

tour airmen received the Distinguished Flying Cross.

June 29. Major General Frank M. Andrews made a Douglas by Diloting Virginia, in distance record for amphibian planes by Field, Virginia, in Joseph Major Comporto Rico to Langley Field, Virginia, in Joseph Major Comports Rico to Langley Field, Virginia, in Joseph Major Comports Rico to Langley Field, Virginia, in Joseph Major Comports Rico to Langley Field, Virginia, in Joseph Major Comports Rico to Langley Field, Virginia, in Joseph Major Comports Rico to Langley Field, Virginia, in Joseph Major Comports Rico to Langley Field, Virginia, in Joseph Major Comports Rico to Langley Field, Virginia, in Joseph Major Comports Rico to Langley Field, Virginia, in Joseph Major Comports Rico to Langley Field, Virginia, in Joseph Major Comports Rico to Langley Field, Virginia, in Langley Field, Virginia, Virgi 17 hours and 9 minutes.

1937—August 5. The Air Corps performance flights at wright made its initial performance cabin, oxygen equipments, was unnecessary.

1937—August 72.

1937—August 73.

1937—August 73.

1937—August 73.

1937—August 73.

ment was unnecessary.

1937—August 23. Captains Raymond K. Stout, landings under adverse Wright Field, made two entirely automatic landings under wind conditions.

1938—April 20. Four officers and five enlisted men began instruction of patterson field, Fairfield, made two entirely automatic land at Patterson adverse wind conditions.

1938—Enhanced In 27 Civ. P. 17 hombon flow to the pattern of the pattern o

ings under adverse wind conditions.

1938—February 15-27. Six B-17 bombers flew from The trip south involved to Buenos Aires, Argentina, and return. The Buenos Aires, Argentina, Lima, Peru, and Lima, and Albrook landings at Miami, rmade at Santiago, Chile, Lima, and turning, landings were made at Santiago, at Santiago, Chile, Lima, and Lima, and Lima, and Lima, landings were made at Santiago, Chile, Lima, and Lima, landings were made at Santiago, Chile, Lima, and Lima, landings were made at Santiago, Chile, Lima, and Lima, landings were made at Santiago, Chile, Lima, and Lima, landings were made at Santiago, Chile, Lima, and Lima, landings were made at Santiago, Chile, Lima, and Lima, landings were made at Santiago, Chile, Lima, and Lima, landings were made at Santiago, Chile, Lima, and Lima, an

Freld, Panama Canal Zone.

1938—April 14. During a period of four days, all food, grain and 30 men and 30 men

Big Bend District in Texas.

1939—February 4.6. Major C. V. Haynes, Air Corps, with a crew of load of the load of



## CLASSIFICATION PRE-FLIGHT

Fully equipped and proud of his new uniform an aviation cadet leaves the receiving building, a new man.



## Beginning GADET TRAINING

The first half hour is the easiest when a young American reports for training in the Army Air Forces. Having been examined, passed and signed up in his home town, he is then sent to the cadet Classification Center for actual induction —the first step on the tough but exciting road to his Army Air Forces Wings. What happens to him immediately on arrival is shown on this page. Having gone through the "first half hour" shown here, the cadet will soon be classified by aptitude tests for bombardier, navigator, or pilot training, and

WHAT NEXT? is the cheerful attitude of a typical aviation cadet as he plunges into a new life at the receiving building at one of the Classification Centers. In less than half an hour he will be fully transformed from a civilian to a completely outfitted cadet.

Left: BLOCKING THE WAY ON THE "MAIN LINE" through the building is the shower room where the aviation cadets are required to give themselves a good scrubbing and to put civilian clothes in one of two barracks bags handed them. Second bag is for military clothes to be issued them.

Below: In footprints painted on the floor, the aviation cadet stands while experts size him up as to physical development. Expert alligns his backbone with two strings to see if it is perfectly straight. Physical records are kept on cadets throughout the training period with a view toward correcting minor ailments by specialized exercises.



Squadron Assignment

Corps of Aviation Cadets





ON PARADE

sent to a specialized school in one of the training centers. Less than a year later he will emerge as one of the best flying officers in the world, ready to join-Uncle Sam's mighty air armada in actual combat.



Above: Gone for the duration are civilian clothes. This aviation cadet tries on one of two pair of neat Army oxfords issued him. Civies are laid away in duffel bag.









Tug o'war on the athletic area.

On the pistol range

Over the hurdle on the obstacle course.

### PRE-FLIGHT TRAINING

After completing the tests in the Classification Center, the new

Army Air Forces man is assigned to a pre-flight training school for a training course prior to being sent to a Primary Flight School.

Future pilots who are to receive their pre-flight training are sent to one of several fields, where they undergo nine weeks of intensive

The training program for the pre-flight pilot is in three major divisions, stressing athletics, military and academic work. They are given one hour a day in athletics and one hour is devoted to military training. The military training consists of close order drill which tends to improve military carriage and to teach discipline. Each man is drilled in the elements of military courtesy and receives actual

man is drilled in the elements of military courtesy and receives actual practice in firing the 45 caliber pistol.

The academic program includes extensive studies in mathematics, physics, military law, citizenship, national policy, organization of the United States Government, the Army Air Forces, the Army, current events, types of Air Forces equipment and armament, command and administration in small units, the firing of the 45 caliber pistol, and defeate against chemical attack

defense against chemical attack.

Each four and one half weeks, a new group is sent in from the Classification Center to the Pre-Flight Pilot School and each class

moves up. The upper class members have their first actual practice

moves up. The upper class members have their first actual practice in some of their training as they take charge of the new pilot students and get the new group settled. As the new group begins their nine weeks' course, the upper class moves into the final phase of their training before graduating to the Primary School.

The Pre-Flight Navigator is sent from the Classification Center to one of several Navigator Pre-Flight Training Schools, where he undergoes nine weeks of training which is basically the same as the pre-flight pilot. There the work is divided into the same three categories with their academic work placing more stress on mathematics. Their with their academic work placing more stress on mathematics. Their other studies include Morse code, air forces, flags of all nations, ground forces, physics, naval forces, meteorology, photography, maps and charts, communication, procedure, cryptography, and target iden-

tification.

They are also taught military discipline and the proper ways of safeguarding military information. They spend five hours each day in these classes with new classes coming in every three weeks. Their military training consists of 45 minutes each day spent in close order drill and inspections each Saturday. During the nine weeks' course the men are also given some training in chemical warfare and the use of gas masks and how to recognize the various types of gases.

The ultimate aim of the Navigator School is to give officer training and to give work valuable to them as aircraft observers and to give work

Cadets line up with their ladies. Cadets arrive from classification center.

At the piano in the cadet recreation building. A typical room scene in cadet barracks.

Grand march under sabre arch at Cadet Ball.











Rifle inspection.





The Colors.

which is prerequisite to the advanced schools. The Navigation School works in conjunction with the advanced schools and at the end of each nine weeks a new class is ready to begin the advanced work.

The Pre-Flight bombardier is sent from the Classification Center to one of the many bombardier schools where he also is subjected to the nine weeks of basic pre-flight training. His academic training lays particular stress upon work in bombardment aviation and particular training in observation from the plane. Other courses are practically the same as those required for a pre-flight navigator.

Throughout the first easy "half hour" at the Classification Center and the nine weeks of pre-flight training, the would-be pilot, navigator, and bombardier, all have one thought uppermost . . . to do their best and to get one step further along the road that leads to . . . WINGS.

## PREFLER

Preparing for Saturday inspection.



Awarding trophies.

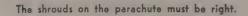




PHYSICAL TRAINING WITH WANDS

Cadets entering the huge mess hall for dinner.





Seasoned and well-drilled, with a fair idea of what military life is about, pilot trainees arrive at one of the Army Air Forces Training Center's elementary flying schools.

These schools are civil airports under contract to the Air Forces. They have lost their indolent look of Sunday afternoon. The leisure is gone out of them. No groups of civilian pilots



Primary trainers.



Classroom instruction.



Do it this way.

loll around in leather jackets. No variety of civilian ships hang around in the afternoon sunlight. The ships now are all trainers—or PT's. They go up one after another in steady drone. Their motors make a business-like, determined cadence in the air. The atmosphere is calmly serious, for here at elementary school is where the cadet must prove whether or not he has the "stuff" to become a military pilot.

His instructor is a civilian. Before the elementary period is up, this instructor must be able to say to his student:

"You have the inherent ability to fly. You have proved it by soloing within from eight to 12 hours. You have taken your ship up and brought it down countless after countless times. You have done infinitely more than this. You have gone up alone and done acrobatics. You have fought back your uneasiness and done loops and snap rolls. You have put your ship in a bad spin and have brought it out . . . which, as I say, proves nothing at all except—you are ready to go to Basic School . . . and luck go with you."

That is all a cadet can hope to get from elementary school, a solid foundation in flying and a boost into a more difficult curriculum. A considerable number of all who enter elementary school never realize this hope, since they "wash out" for lack of "inherent flying ability."

Thousands, however, do make the grade. From the Primaries every nine weeks pour a new crop of cadets, men assured of only one thing—that they can fly a PT, understand its simple movements, and comprehend its rudimentary instrument board.

They take with them to Basic School this experience-and hope.

### LEARNING TO FLY PT'S

Flying blithely through the air may be the dream of many a future pilot when he arrives at a primary training school, but the actual art of successful piloting is no fantasy. The cadet finds that it's a combination of hard work, intense concentration, a fear of the "washing machine" and an intangible something that he either has or he hasn't.



Last-minute instruction.



A parachute is better than a rabbit's foot.



Top: Along the obstacle course. Right: Mass athletic drill.

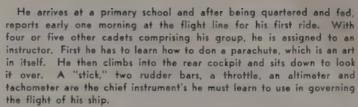




This is what makes it fly.



Ready for the first ride.



First he hooks on his gosports, which are rubber tubes through which his instructor can talk; and much to the consternation of many a "dodo," he learns there is no way to talk back. Ready to go, he "shoves the coal" to his "crate" and taxis in S curves, for better visibility, out to the runway.

All clear, the cadet, with a slight sinking sensation, inches the throttle forward as the ship gathers speed, gradually applies forward pressure to the stick. Then, just at the right time, he hauls back on the control and pulls the nose up into a long, shallow climb.

"Not so steep . . . take it easy. . . . Do you want to stall this crate?" the instructor barks in his ears.

A fleeting glance downward causes the cadet to gulp a couple of times to keep his heart down. The ground drops swiftly away. He circles the field to gain altitude, all the time being careful to conform to the local traffic pattern.

At last he reaches the altitude for straight and level flight.

"Left wing too low—Pull 'er nose up—Watch that tachometer, she's revving too high—Ease back on the throttle—Hold a little right rudder," the instructor cautions.

Correction after correction burns up the gosports as the instructor's monologue becomes a steady drumming in the ears of the chagrined cadet.

As days go by, the cadet learns the "feel" of the plane, becomes dexterous at the more simple maneuvers of flight and recognizes the various plane altitudes and their relations to maintaining his course. He is now ready for that glorious experience when, for the first time, with high spirits and sinking heart, he takes off, flies and lands, without the comforting companionship of his instructor. He solos,

After the "solo" he becomes familiar with various acrobatic maneuvers. Slow-rolls, snap-rolls, loops, spins, chandelles and lazy eights are part of the concentrated training program.

Then suddenly after weeks of primary training, he gazes upon a new world. A world he dared not even dream of heretofore—the world of Basic Flying School.

He is no longer a "dodo." He rapidly is developing into an Army Air Forces pilot. If he ever had a sinking sensation upon looking at an airplane he probably has lost it by now, and when anyone asks him if he can fly, he can answer "yes, sir" in a low, reserved tone—but with one eye cocked toward days to come.

Leaving the hangar.







## BASIC TRAINING

Off we go into the wild blue yonder, climbing high into the sun:

Those first lines of "The Air Corps Song" provide the setting for this photomontage of men and planes. Dominated by that sleek, stub-nosed master of the skies, the advanced trainer at the left, the picture shows (bottom to top) the Corps of Cadets on the march, with the Stars and Stripes of America flying beside the British Union Jack, and the U. S. cadet and the R. A. F. standards billowing next to them. Directly overhead is a scene on the flying line, and above that are the "Three Musketeers" of the air—the combat team of pilot, bombardier and navigator. Surmounting all is an echelon of warbirds, ready to loose their thunder on any enemy who dares to confront them.



## TRAINING

Instructor's favorite method of demonstrating plane altitudes is with his hands. Below: An instructor explains a formation maneuver while cadets "follow through."





At basic he makes his first sundown trek to the flight line, and, after many anxious moments, and by the light of the moon (if he is lucky) he shoves his plane up toward the constellations and realizes he is making his first night flight.

After that comes instrument training, and more night flights, and cross-country flying and more night flights, the use of the radio, and still more night flights.

By this time also, he has learned that there is such a thing as "flaps," and has learned how to use them. With his hair standing on end he perceives there are times to use flaps and times not to use flaps.

Finally, comes that day when he happily watches the upperclassmen

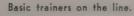
move on to Advanced Training. A self-satisfied smile spreads across his face, for now HE is an upperclassman.

Immediately, he turns to the new arrival from Primary and barks, "Brace there, Mister . . . Where did you get so gross? What country club did you come from?"

There is little time to "lord it." His time now is taken up sunk in navigation problems to prepare him for cross-country flights. He is quite busy getting a firm hand on his tricky BT.

Basic seems to become very "gross" toward the end. The cadet becomes conscious of a new world, the last to be thoroughly toured before he gets his commission to the world known as Advanced Flying School.

Cadet mess.









NIGHT FLIGHT





### ADVANCED TRAINING

"Where the pig iron is taken and molded into the finished product." The third and last phase in an aviation cadet's training is at Advanced, and it is here that the polish is applied and the kinks taken out before sending him out as an officer. For the first time, the cadet is considered a pilot—and the instructor, his flight commander. He learns to carry the responsibility which will soon be his—to know that in his hands are the lives of others as well as his own.

Having completed Primary and Basic training, the boys decide they're pilots and that this Advanced "stuff" isn't going to get them. No Sir! After handling those basic trainers, the AT's are going to be easy. All goes well—the cadets report in. No hazing from the upperclass—in fact, no trouble at all as long as they remain "eager."

The first ten hours of flying at Advanced is devoted to transition. During this time the cadet learns to handle the faster and heavier ship with its additional equipment, such as retractable landing gear, hydraulic flaps, and constant speed prop. These are the days of worry, for what cadet wants five stars? However, the time goes quickly, and the cadets say "Goodbye" to the time when they could take up a plane by themselves and fly as they desired, for formation flying walks in the door and remains. Instrument flying is an important part of the training, part of it on the ground in the "Jeep"



Left, Top: THE OLD PUSH-UP is a standard "man killer" In the Training Centers, but cadets, becoming tougher and tougher, refuse to be tired, come back for more. Bottom: Final Exams.

## the All MANCED



Ready for Oxygen Hop.

(Link Trainer) which handles just like the real airplane. In these are taught the procedures which are later practiced in the air on team rides under the hood. Altitude flights are made to accustom cadets to the use of oxygen and the reactions of the plane in the lighter atmosphere. One of the most thrilling of all the cadet missions is the first night cross-country trip. Having flown "night local" at Basic, night flying itself is not so unusual, but to follow the light lines to another city means a new step in training. Flying takes but half of the day—the remainder is spent in the classroom, at athletics, or drilling.

Then for ten days, the class has a break in their advanced training—ten days of gunnery practice at



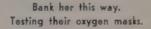
Above, Top: AT Advance Twin Engine Trainer. Bottom: AT-6's on the line.

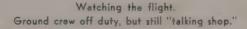
another school. Here cadets practice at ground and aerial gunnery. With machine guns mounted on the trainers, each man shoots several hundred rounds over days.

hundred rounds every day.

Yes, at any advanced flying school is taught the necessary subjects which any Army Air Forces pilot must know, to prepare him for service in the field as an officer.

Closeup.
Trainer with control unit.





































Top Row, Left: Gentlemen with swords once settled their quarrels at dawn. But these gentlemen, aviation cadets in the Training Center, work out with foils in order to develop cat-like quickness and dexterity which will be valuable to them in settling scores in air combat. Center: After a long flight, Right: Cross-country preparation.

Middle Row. Left: Back to the barracks after a hard day's work in the air. Center: British cadets fold Old Glory at Retreat. Right: Advanced navigation trainer.

Bottom Row, Left: A sextet of aviation cadets in the air as they are determinedly making a broadjump on the obstacle course used in the physical training program. When the full story of this war is written, there will be a special chapter devoted to the hours of scientific study, the subsequent hours of manpower, prespiration and drudgery now being expended to toughen our combat fliers for the fight. Men were not made to fly at rarefied altitudes of 30,000 feet, nor were they built to be wrenched in the air at speeds of 500 miles an hour. But our enemies are doing it. We must. And the rugged physical conditioning program in the Training Center is the successful answer to how we can. The keystone in the training program is the development of those muscles and nerves most used in combat flying. Center: Sky Bound. Right: Advanced Trainers.

Left: Like a man from Mars with a "death ray generator" in his hands, this Army Air Forces photographer draws a bead as squadrons of planes roar across the cloud banks. Anywhere he may point his finder he will catch the growing flights of aviation cadets doing precision formation flying.





## BOMBARDIER TRAINING

The whole striking power of the Air Forces, insofar as destructive power is concerned, is carried at the tips of the Bombardier's fingers. Isolated and alone in the glassed-in "greenhouse" right in the very nose of the powerful bomber, it is his duty to direct his plane to the proper point above his target and release his bombs with such split-second timing as to insure their finding their mark.

For much of the plane's flight the bombardier is merely a passenger, but as the plane nears its objective it is in his hands, and his alone, that the success of the mission rests.

Aided by the finest instruments for precision bombing owned by any nation in the world, the bombardier must make allowances for such things as plane speed, height, air temperature, weight of the bombs, wind and cross drifts and other factors.

He sets these facts into his bombsight, which is in essence a calculating machine, and at the right moment releases his bombs.

Before he reaches that target, however, the bombardier spends twelve crowded weeks learning the fundamentals and the fine points of his destructive trade. The bombardier is selected for his task at the Classification Section of the Air Forces. He is selected because

Shown through the two racks of bombs is a bombardier cadet waving an all-clear to the ground crew as he goes up to the "nose."



Bombardier training.
Instructor at the blackboard explaining diagram illustrating the fall of the bomb as aviation cadets look on.



## BOMBARDIERS

he has shown marked ability at manual dexterity so that he can twist knobs without fumbling, muscle control so that his adjustments are always precise, serial reaction so that he can apply data in orderly sequence, and a calm temperament so he won't get rattled easily.

Once he has been selected for his rigorous task the embryo bombardier is sent to one of the large bombardier schools, where he is first introduced into the theory of bombing. He attends classes and discovers the intricasies of what makes bombs fall as they do. He learns the composition of bombs, their various reactions to different conditions and situations. Above all, he spends many hours practicing on the bomb trainer, a platform some 12 feet above the ground which simulates actual bombing conditions.

Over and over again he works out the various problems that are connected with his intricate art, learning to turn dials, straining his eyes, learning to coordinate mind and body so that his movements will be swift, sure and above all, accurate. As time goes on he finds that he is acquiring the sure timing and accurate adjustment necessary to make of him a finished bombardier.

He learns in classroom about such things as probable error, the reason behind pattern bombing, learns how to calculate wind drift and other such problems.

As he grows more proficient he works out advanced problems involving all these factors on his training platform, so that by the time he is ready to take to the air for his practice trips he has a clear idea of just what problems he will face and what his responsibility is.

When the time comes for him to make his practice bombings he is carried in a modern fast bomber. He bombs at day and he bombs at night. He lives and thinks bombing. The practice bombs are loaded with black powder instead of high explosive and when these detonate the bombardier can see just how far he missed his target. He get practice bombing from all angles and under all kinds of conditions. He learns to bomb from high altitude when his bombs are released three miles before he reaches his objective, and he learns to bomb from low altitudes when his bombs crash right on top of his objective.

He is schooled in the use of the Norden and Sperry bombsights, our most vital military secret.

At the end of nine weeks he makes his "record runs," the final examination for a bombardier which determines whether he is a first, second or third class bombardier. If he graduates as a first class bombardier his position will probably be in the nose of the leading plane in his flight so that he can help the following bombardiers in the proper releasing of their bombs.

During his last three weeks of training the bombardier is in the air almost constantly, bombing on the practice range under all types of combat conditions. He learns how to release his bombs at very low altitudes when he can't use his sight, but must rely on his own sight and judgment; he also learns to bomb from so high that he has to use oxygen to enable him to breathe. He learns how to check his

Where to this trip? The cadets check the mission schedule to get their destination and "target" for the flight.



## IN THE MAKING





This Douglas B-18 bombardier training ship with its bomb racks loaded with practice bombs and manned by aviation cadets en route to target range.

data and release his bombs within 20 seconds of sighting his objective. He learns how to loose his bombs either in a string, which is one at a time, or in a salvo, which is all together.

At the end of his 12 weeks he is graduated and gains his coveted wings. From that time on he is a finished bombardier. He may be used to train other bombardiers or he may be assigned to a combat squadron anywhere on the face of the earth where the far-flung armies of the nation are in combat.

Like the pilot and the navigator, the bombardier is a highly specialized man. He is trained to function as an integral part of the bomber crew, and he knows that he was picked for his task, just as the pilot and the navigator, because of special skills which have been further developed by the course of training which he has undergone.

From bombardier cadets, eager to go "upstairs" for one of their regular training flights at an advanced flying school, check out their flying "tack" at Supply Headquarters.





Planning the "Pay Load." Tools of the cadet bombardier's important trade are these 100-pound training bombs, ready to be loaded into the giant belly hatch of a 8-18 bomber.





HITS OR MISSES? Whether our bombers, hurtling across thousands of miles of ocean waste like this, smash targets or miss objectives completely, depends largely on the navigator, dubbed "The Little Tin Guy." Above, a training ship from one of the Navigation Schools flies a plotted course over the Atlantic. Below, left, a student navigator keeps on course by shooting the sun through the blister in the ship's top. After graduation, young navigators with motto, "Get 'em there—Get 'em back!" can take bombers anywhere—Tokyo not excluded.

Hundreds of two-engined training ships like this whisk students aloft on 1,000-mile missions. Ships carry a crew of five, the pilot, navigation instructor, and three students.

They call him the Little Tin Guy.

His nerves seem all metal, his mind works like a compass, and his job is to get our bombers there and get 'em back, over land, over water, through weather and rain and hail and fog—through anything!

He is better known as the navigator and he is being trained at

specialized schools.

The Little Tin Guy is being hammered out by the hundreds, and he will be hammered out by the thousands. He was present to smash the Jap fleet at Midway, and he carried the fire to Tokyo with General Doolittle. If he had not been along with his octant, his dividers and compasses, his maps and charts and unpronounceable gadgets, there would have been no victory at Midway, no fires at Tokyo.

Below, right, in the back seat, another cadet navigates the same course by pilotage, or by checking points on his map with corresponding points on the ground. The river he sees coiled below is a well-known landmark.











Cadets sit one behind the other at desks in the belly of the ship. Here students have several minutes to figure their course while the pilot circles the field.

oxygen. He must be able to work complicated problems at dizzy heights where the average man cannot add three and six.

Classified "navigator," he is put through weeks of elementary training and then sent to a navigation school for the real thing.

With E68 computer, called "The Navigator's Wife," because, cadets say, "It does everything in an airplane but cook," a cadet estimates time of arrival to the next familiar landmark. . . . Meanwhile another cadet, who must figure entirely by instruments, looks through driftmeter to see if wind is knocking the ship off course. . . . To be triple sure of the airplane's location, the pilot puts the ship on "automatic pilot" and lets it fly itself while he studies his map. If student gets off course, he will not correct him, but will keep his own bearings and tell student his mistake later. . . . OXYGEN MASKS are worn by all crew members above altitudes of 10,000 feet. The Navigator must be in top physical condition, for in combat missions he must forsake oxygen and move around the ship to use his octant. In actual combat he mans a machine gun.











This school hands him an intensive, practical course. He gets a course in the Navi-trainer, a machine which simulates all conditions of air navigation. He goes to ground class for eight hours a day, and for three hours at night. He is awakened in the dead of night and routed out to study the stars. He learns the theory of celestial, radio, pilotage and dead reckoning navigation.

Then his classroom goes to the sky. He flies in the two-motored AT-7. The ship carried three students, one instructor, and a pilot. The students sit at three desks one behind the other in the belly of the ship.

Usually the student in the front seat works his problem by instruments. He is not allowed to look at the ground. (The ground may not be visible to help on combat missions.) The other two students do pilotage or follow the course on the map by recognizing corresponding objects on the terrain.



The new navigator spends 100 hours in the air. The courses he charts take him over several states. He directs the ship through day and through night on four-hour missions, on eight-hour missions. He mustn't go to sleep. He musn't blink an eye.

"Zero Zero" is the navigator's ultimate objective. Zero Zero in navigation means perfection. It means navigating through hundreds or thousands of miles of space, cloud rack, wind and weather and hitting a dime-size objective "on the nose" at the precise second you predicted you would hit it on the nose. One inch off is not Zero Zero. One second early or late is not Zero Zero. Zero Zero means right on the button, right on time!

It is not easy. New navigators say, "If you got there Zero Zero the driftmeter plays 'The Star Spangled Banner' and hands you a cigar!"

But at the end of the course they do get there Zero Zero, and they get their Wings.

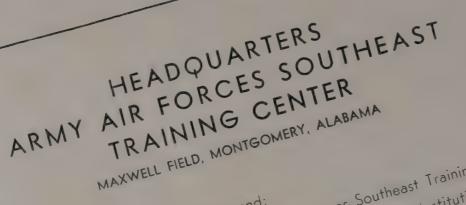
Then to units for further tactical training where they work for a while as members of a fighting team before they go to combat or to a ferry command.

The navigator's first assignment may be to navigate a quartermillion-dollar Flying fortress and its seven-man crew from Florida to a pin-dot airbase, surrounded by enemy-held territory—overseas. The ship is his personal responsibility. If he misses, too bad. But he doesn't miss.

The best and most independent old pilots warm up to their navigators in direct proportion to the distance they have to fly. Flying in this war is almost all long-distance flying. The emphasis is on the navigator. The emphasis is on the Little Tin Guyl



# ARMY AIR FORCES SOUTHEAST TRAINING CENTER MAXWELL FIELD, ALABAMA



Since July 13, 1940, the Army Air Forces Southeast Training Center has developed from almost nothing to the great institution To All Members of This Command: it is today. Its present fine state is a demonstration of the loyalty and inspiring efforts of the entire personnel. To all who have labored to bring the Training Center to that level of efficiency.

We cannot, however, now rest on our laurels. In the coming months our efforts must be redoubled, our output must be better and the number greater. Our troops are now actually entering the conflict. We find that we are up against foes that are tough thanks are due. and experienced. We must do everything in our power so that the graduates of this institution will be so tough and so well instructed that they will be able to take their place in the fighting line as well trained for combat as our best efforts can make them.

Major General.





### RALPH ROYCE Major General

U. S. ARMY

Commanding Army Air Forces Southeast Training Center

Drawn straight from combat command to give the benefit of his experience to the country's future fliers, Major General Royce assumed command of the Army Air Forces Southeast Training Center in September, 1947

1942.
General Royce was born in Marquette, Michigan, in 1890, attended school at Hancock, Michigan, and was appointed to West Point in 1910, graduating in 1914. He served with the First Aero Squadron in the Mexican Punitive Expedition in 1916, and led the first All-American unit over the lines in France in 1917, where he won the Croix-de-Guerre.

During the period 1920 to 1926 General Royce commanded the Air Corps Primary Flying School at Carlstrom Field, Florida, and Brooks Field, Texas:

and from 1928 to 1930 he commanded the First Pursuit Group at Selfridge Field. During 1930-33 he was on the General Staff of the War Department, and in 1934 he made an aerial survey of the route from the United States to Alaska. After commanding at Selfridge Field from 1934 to 1937 he spent two years in the Philippines.

He returned to command the Seventh Bombardment Group at Hamilton Field, California, and the 20th Bombardment Wing at Fort Douglas, Utah, from 1939 to 1941. During 1941 he served as Military Attache in London and with the Harriman Mission to the Middle East. He was assigned to Australia in early 1942 where he was Chief of Allied Air Operations and later in command of the Northeast Area, scene of the heaviest air operations against the Japanese.

## GENERAL STAFF





WILLIAM W. WELSH Brigadier General, General Staff Corps Chief of Staff



A. L. PRICHARD
Lieutenant Colonel General Staff Corps
Assistant Chief of Staff
A-I



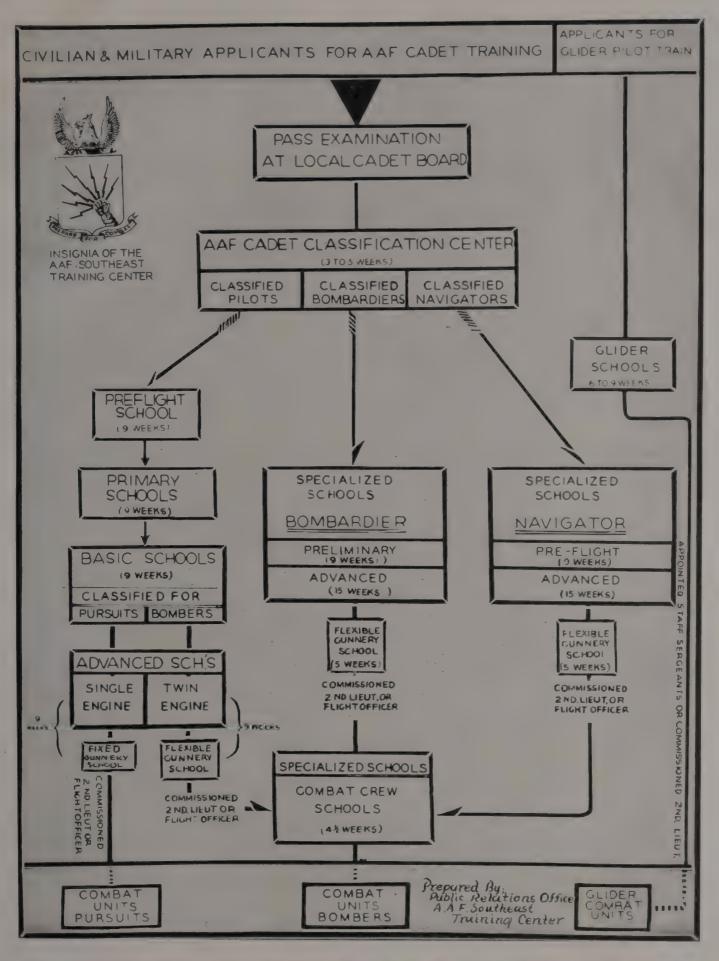
AMZI G. BARBER Lieutenant Colonel, General Staff Corps Assistant Chief of Staff A-2



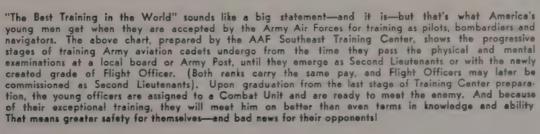
R. J. STECKER Lieutenant Colonel, General Staff Corps Assistant Chief of Staff A-3



LEDCREICH STUART VANCE
Lieutenant Colonel, General Staff Corps
Assistant Chief of Staff
A-4











School Squadron Building.



Maxwell Field Post Headquarters.





"PX" CAFETERIA, FOR ENLISTED MEN AND CIVILIAN EMPLOYEES

## AROUND MAXWELL FIELD

Today, three Army Air Forces Training Centers, each operating as a separate unit, but all constituting one great United States Army Flying Academy, are working day and night to attain the goal of producing the necessary pilots, navigators, bombardiers to blast the Axis forces off the ground and out of the skies. They are the Army Air Forces Southeast Training Center, with headquarters at Maxwell Field, Ala.; the Army Air Forces Gulf Coast Training Center, with headquarters at Randolph Field, Texas, and the Army Air Forces West Coast Training Center, with headquarters at Santa Ana, Calif.

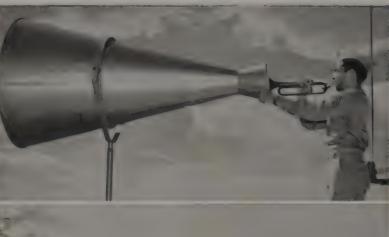
The Southeast Training Center is typical of all three, and more than either of the other two, it started from scratch.

On November 16, 1940, the Army Air Forces Southeast Training Center launched its aviation cadet program. Major General Walter R. Weaver was put in command of the Center and at that time it consisted of nothing more than its present headquarters at Maxwell Field, Montgomery, Ala.

To the Right, Top: Austin Hall, Headquarters of the Army Air Forces Southeast Training Center, Maxwell Field, Alabama. Bottom: Office of the Commanding Officer, Headquarters, AAF Southeast Training Center.













Above, Top to Bottom: Mess Call. Cadet Mess Hall. Post Exchange, Maxwell Field. Post Library.



Today scores of air schools are operating in the Training Center. Many others are soon to be activated. Webbed as a single unit around their command headquarters at Maxwell Field, they dot the land from the State of Wisconsin to the tip of Florida, extending as far west as North Dakota. In fact, the Southeast Training Center has long since outgrown its name. Here in this part of the United States, lies the greatest air training center in the world today. The sky is literally the limit for the facts and figures of the expanding program and for the number of men fast undergoing the transition from shaky-winged fledglings to dependable Army flyers.

As though this were not job enough, the Center swung open its doors in June, 1941, to British aviation cadets, who after completion of their training returned home for duty with the RAF. The total number of British students graduated from the schools in the Center is a military secret, but the total figure runs into the thousands.

And in May, 1942, a large contingent of sun-tanned Dutchmen from the East Indies arrived in this country for training in the Southeast Training Center.

Call it discipline, organization, mass production, or what you will ... The Southeast Training Center is producing a large share of the nation's pilots, navigators, bombardiers. A new class of aviation cadets enters the training center every five weeks. From all over the country, from many different vocations, climates and ways of life, they come to sign up with the Air Forces. They have three things in common: a minimum amount of luggage, a yen to fly, and a desire to come to grips with the enemy.



## 65 THAAFFTD

SOUTHERN AVIATION TRAINING SCHOOL, INC.
DECATUR, ALABAMA





FORDHAM L. JOHNSON
Captain
Operations Officer



JAMES L. CURNUTT Major Commanding Officer



JOHN H. NUNAN First Lleutenant Adjutant

### ARMY ADMINISTRATION



NATHAN B. OLIM First Lieutenant Commandant of Cadets



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VANDERHORST B. MURRAY, JR.
Second Lieutenant
Intelligence Officer



WALTER F. ROBBINS Second Lieutenant Director Physical Training



DONALD M. KERSEY
Captain
Commanding Air Depot Detachment



NEWTON D. REEHORST Second Lieutenant Assistant AAF Supervisor



SOLOMON BERSHADSKY Captain Post Surgeon



E. Y. CLARK
First Lieutenant
Assistant Medical Officer

### ENLISTED PERSONNEL

#### **ADMINISTRATIVE**



Walter D. Schultz Technical Sergeant Sergeant Major



James J. DeCesare Sergeant Personnel Clerk



Walter M. Hazen James P. Syers James E. Willett
Staff Sergeant
Personnel Sergeant Major Administrative Clerk Physical Training Director







Hamilton H. Clawges
Sergeant
Engineering and
Operators Corre

#### MAINTENANCE





Richard V. Moore Technical Sergeant Technical Inspector



Jimmie B. Rentz Sergeant Technical Inspector

#### **MEDICAL**



Harry J. Pieper Corporal Medical Attendant



Benny F. Sfero Technician Fifth Grade Medical Attendant



William L. Kearns Private First Class Medical Attendant





Edward P. Taposik Private First Class Medical Attendant



James B. Peden Private Medical Attendant



Elmer W. Meikus Private Medical Attendant

#### LINK TRAINER



Thomas G. Bradford Staff Sergeant





Joseph P. Borinski Sergeant



Ferman B. Manuel Sergeant



Charles P. Price Sergeant



Boyd R. Beveridge Sergeant



Robert G. Bodnar Sergeant



Mayhew G. Hankinson Scraeant



Frank M. Terwilliger Corpora

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BLOOMFIELD M. CORNELL General Manager



JAMES C. LEACH Comptroller



A. J. HAWTHORNE Business Manager



ANDREW FLOYD LANDERS
Purchasing Agent

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ROBERT C. GRIFFIN Group Commander





D. F. Croley H. L. Ewing E. S. Page Squadron Commander Squadron Commander Squadron Commander





Walter E. Smith Squadron Commander



Lee Balestra Flight Commander



J. D. Christian Flight Commander



Madison H. Dean



C. H. Eubanks Flight Commander



G. D. Fletcher Flight Commander



Earl Lindsly Flight Commander

#### DEPARTMENT OF FLYING



W. C. Litty
Flight Commander



W. W. Lundy Flight Commander



R. I. Pitts
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J. D. Ransome Flight Commander



J. L. Small Flight Commander



R. L. Thomas Flight Commander



J. L. Anderson



W. L. Anderson Instructor



C. C. Barfield Instructor



D. C. Bailey Instructor



J. I. Barron Instructor



R. G. Byrd Instructor



C. W. Beaufort Instructor



D. W. Carr Instructor



B. L. McConaghy Instructor



O. C. Craig Instructor



C. C. Currier Instructor



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R. D. Dishman Instructor



P. P. Eddy Instructor



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D. C. Hammarley Instructor



J. T. Harris Instructor



J. S. Heggie Instructor



S. O. Holmes Instructor



C. P. Ims



D. W. Keir Instructor



W. H. King Instructor

### DEPARTMENT OF FLYING



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C. F. Losh Instructor



W. W. Lundy Instructor



H. Maclean Instructor



D. W. Mangino Instructor



Burl B. Hardwick Instructor



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R. E. McDowell Instructor



S. G. McGuffin Instructor



A. L. Miller Instructor



R. Miller Instructor



John J. Kenny, Jr. Instructor



J. P. Owens Instructor





R. K. Patrick Instructor



T. V. Reeves Instructor





William F. Bennett Instructor



D. R. Schilmiller Instructor



C. D. Shank Instructor

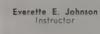


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W. E. Thomas Instructor



James S. McNeal Instructor



J. R. Tubb, III



O. C. Vice Instructor



H. W. Wheelless Instructor



W. T. White Instructor



J. W. Wilkinon Instructor



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E. M. Holton Dispatcher



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Office
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Marjorie Laubenthal Time Recorder



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Billye Immel Telephone Operator

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Beulah C. Kilgore Dictitian



Mrs. John Braswell Asst. Dietitian



Nancy A. Thompson



Ozeli B. Taylo



THE QUADRANGLE

## AROUND THE FIELD





MESS HALL





LINK TRAINER ROOM





LINE OF TRAINERS





JAMES L CURNUTT

Major

Commanding Officer



Phone Operator



Office, School.

Senior Officer of the Day on Duty.















NAVIGATION CLASSES

SICK CALL

## HERE AND THERE



## AROUND CAMP

ENGINE CLASSES

MRS. KILGORE
The dietician at her desk



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L. G. Clark Group Adjutant Walhalla, S. C.



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Leecroy Clifton
Squadron Commander
(Sqn. I)
Route I
Westbrook, Tex.



der Sq.



David Bronstein Squadron Commander (Sqn. 2) 1709 Crump St. Fort Worth, Tex.



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Don Carlos Archibald 213 E. Second South St. Rexburg, Idaho



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Ivan C. Atkinson
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Brysin St.
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Harvey D. Atwater Spartanburg, S. C.



Edward M. Ayres, Jr. Osceola, Ark.



Harold E. Babb Route ! Chillicothe, Mo.



Arvel L. Baker Route 2 Anson, Tex.



Rembert O. Ballington Lexington, S. C.



Eubanks Barnhill Baker, Fla.



Edward M. Bergquist
Route 1
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William S. Beshekas



Winfred P. Bidwell
Route 2
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William M. Black 103 12th St. Canyon, Tex.



William E Bolton Market St. Stockton, Calif.



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Ronald C. Fullerton Grand River, Iowa



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Lewis W. Graham 1262 Chestnut St. Bowling Green, Ky.



Theodore Otto Gramm Route I 174 N. Whittelsev Ave. Newburgh, N. Y. Wallingtord, Conn.



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David H. Greiss Route I Alburtis, Pa,



George A. Haakenson 420 E. Third . Albert Lea, M

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William M. Martin 532 Bay St. Taunton, Mass.



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Ronald C. McGrath Cathlamet, Wash.



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Orin E. Olson New Rockford, N. D.



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Clarence M. Off 1853 Niagara Falls Blvd. Tonawanda (Buffalo) N. Y.



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1390 E. 124th St. Cleveland Ohio



Marvin J. Reddick Box 661 Avon Park, Fla.



George John Retz Pearl River, N. Y.



Marcel L. Richard 407 Second St. N. E.



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Mike A. Roddy, Jr. Nebraska City, Neb.



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Kenneth F. Wittekiend



Richard N. Woda 181 Rogers St. 2437 W. Cortland Ave. Barry, III. Chicago, III.



Richard G. Wood 31 Marlon St. Haverhill, Mass.



Roy Wyllie, Jr. Box 541 Parlier, Calif.



Arlon F. Ziegler 607 Linden St. Elfingham, III.



Line Canteen.

## AT THE FIELD



Right, top to bottom: Ready Room; Instructor and Cadet; Taker 'er up; On the Line.



Do it this way.













## ALLIN



Left, Top to Bottom: Calisthenics; Calisthenics; Going to Class; Between Class.



Center, Top to Bottom: Calisthenics; Class.





## A D A Y



Right, Top to Bottom: At the Canteen; Nose spray; Army office.

Eyes examined free.



Center, Top to Bottom: Rest; Just Waiting.













Off for his solo flight.

## UPPER CLASS AT AUXILIARY

Waiting their turn.

Warming up.







Last instructions.

## FIELD 'BEAVER DAM'



Last inspection.

Waiting at Tower for their turn.







LINK TRAINER INSTRUCTIONS



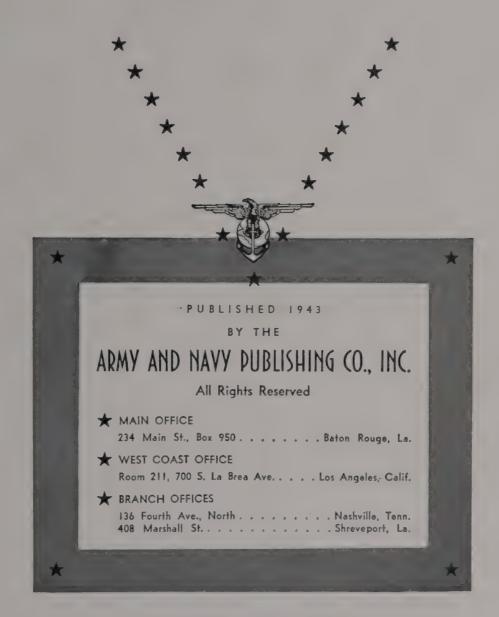




Dawn patrol.



Take seats-rest!



CAPTAIN CHARLES D. BAYLIS, USMC (RET)
Editor-in-Chief and Director of Field Operations

Sale of this review is restricted to officers, enlisted personnel and their families.

Fourth Edition



